104.5 - Spectrometry, Single Element Standard Solutions

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Commercial Producers of Elemental Standard Solutions: Instructions and a spreadsheet have been designed as an aid for establishing traceability of a batch of an elemental solution to the corresponding elemental spectrometric solution from the NIST SRM 3100 Series. Spreadsheet with ICP-OES example data is also included. When all required input fields are filled, the spreadsheet will calculate the traceable mass fraction and uncertainty of the batch elemental solution standard. The uncertainty provided by the spreadsheet assumes that the tested lot is stable. Any uncertainty due to changes over time to the lot tested, need to be quantified by the producer of the lot, and incorporated into the total uncertainty of the lot.

Instructions: http://www.nist.gov/mml/analytical/inorganic/upload/SRM-3100_Version-1-2-Instructions.pdf
Spreadsheet: http://www.nist.gov/mml/analytical/inorganic/upload/SRM-3100_Traceability-Tool-Version-1-2.xls
Sample data: http://www.nist.gov/mml/analytical/inorganic/upload/SRM-3100_Example-Data-Set-for-Traceability-Tool-Version-1-2.xls

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	3101a	3102a	3103a	3104a	3105a	3106	3107	3108	3109a	3110	3111a	3112a	3113	3114	3115a	3116a	3117a	3118a	3119a	3120a
Description	Aluminum (Al) Standard Solution	Antimony (Sb) Standard Solution	Arsenic (As) Standard Solution	Barium (Ba) Standard Solution	Beryllium (Be) Standard Solution	Bismuth (Bi) Standard Solution	Boron (B) Standard Solution	Cadmium (Cd) Standard Solution	Calcium (Ca) Standard Solution	Cerium (Ce) Standard Solution	Cesium (Cs) Standard Solution	Chromium (Cr) Standard Solution	Cobalt (Co) Standard Solution	Copper (Cu) Standard Solution	Dysprosium (Dy) Standard Solution	Erbium (Er) Standard Solution	Europium (Eu) Standard Solution	Gadolinium (Gd) Standard Solution	Gallium (Ga) Standard Solution	Germanium (Ge) Standard Solution
Unit of Issue	(50 mL)	(50 mL)	(50 mL)	(50 mL)	(5x10 mL)	(5x10 mL)	(50 mL)	(50 mL)	(5 x 10 mL)	(5x10 mL)	(50 mL)	(5 x 10 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(5 x 10 mL)	(50 mL)
Nominal Acid Concentration of Matrix	HNO_3 10%	HNO_3 10% + HF 2%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	H_2O	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 1%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10% + HF 2%

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SRM	3121	3122	3123a	3124a	3126a	3127a	3128	3129a	3130a	3131a	3132	3133	3134	3135a	3136	3137	3138	3139a	3140	3141a
Description	Gold (Au) Standard Solution	Hafnium (Hf) Standard Solution	Holmium (Ho) Standard Solution	Indium (In) Standard Solution	Iron (Fe) Standard Solution	Lanthanum (La) Standard Solution	Lead (Pb) Standard Solution	Lithium Standard Solution	Lutetium (Lu) Standard Solution	Magnesium (Mg) Standard Solution	Manganese (Mn) Standard Solution	Mercury (Hg) Standard Solution	Molybdenum (Mo) Standard Solution	Neodymium (Nd) Standard Solution	Nickel (Ni) Standard Solution	Niobium Standard Solution	Palladium Standard Solution	Phosphorus (P) Standard Solution	Platinum Standard Solution	Potassium (K) Standard Solution
Unit of Issue	(5 x 10 mL)	(50 mL)	(5x10 mL)	(5x10 mL)	(50 mL)	(5 x 10 mL)	(5 x 10 mL)	(5x10 mL)	(5 x 10 mL)	(50 mL)	(5 x 10 mL)	(5 x 10 mL)	(5 x 10 mL)	(5x10 mL)	(5x10 mL)	(50 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(50 mL)
Nominal Acid Concentration of Matrix	HCl 10%	HNO_3 10% + HF 2%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 1%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HCl 10%	HNO_3 10%	HNO_3 10%	HNO_3 10% + HF 2%	HCl 10%	HNO_3 0.8%	HCl 10%	HNO_3 1%

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SRM	3142a	3143	3144	3145a	3147a	3148a	3149	3150	3151	3152a	3153a	3154	3155	3156	3157a	3158	3159	3160a	3161a	3162a
Description	Praseodymium (Pr) Standard Solution	Rhenium Standard Solution	Rhodium Standard Solution	Rubidium (Rb) Standard Solution	Samarium (Sm) Standard Solution	Scandium (Sc) Standard Solution	Selenium (Se) Standard Solution	Silicon Standard Solution	Silver Standard Solution	Sodium (Na) Standard Solution	Strontium (Sr) Standard Solution	Sulfur Standard Solution	Tantalum Standard Solution	Tellurium Standard Solution	Terbium (Tb) Standard Solution	Thallium Standard Solution	Thorium Standard Solution	Thulium (Tm) Standard Solution	Tin (Sn) Standard Solution	Titanium (Ti) Standard Solution
Unit of Issue	(5x10 mL)	(50 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(5x10 mL)	(5 X 10 mL)	(50 mL)	(5 x 10 mL)	(50 mL)	(5 x 10 mL)	(5 x 10 mL)	(50 mL)	(5 x 10 mL)	(5x10 ml)	(5 x 10 mL)	(50 mL)	(5 x 10 mL)	(50 mL)	(50 mL)
Nominal Acid Concentration of Matrix	HNO_3 10%	HNO_3 10%	HCl 10%	HNO_3 1%	HNO_3 10%	HNO_3 10%	HNO_3 10%	H_2O	HNO_3 10%	HNO_3 1%	HNO_3 10%	H_2SO_4 0.1%	HNO_3 10% + HF 2%	HCl 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 10%	HNO_3 5% + HF 1%	HNO_3 10% + HF 2%

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